



THE OHIO STATE
UNIVERSITY

Quantity or Quality: Participation and General Health Outcomes in TBI Patients

Emily Markham; Jennifer Bogner, PhD, ABPP

INTRODUCTION

- This study sought to determine the extent to which the quantity or quality of one's participation predicts health outcomes in TBI patients.
- Prediction is one of the first steps in determining causality; further studies will benefit from these findings when examining more detailed relationships between participation and general health outcomes in this clinical population.
- Previous research in the general population has shown the importance of social participation and work-life balance for overall greater well-being. (Frone, 2003; Greenhaus, Allen, & Spector, 2006; Haar, Russo, Suñe, & Ollier-Malaterre, 2014; Lee et al., 2007; Wang, Afifi, Cox, & Sareen, 2007; Williams, Rapport, Millis, & Hanks, 2014)

Traumatic Brain Injury (TBI)

Chronic health condition with severe physical, social, and cognitive implications (Corrigan, 2015)

Loss of executive frontal brain functions needed to successfully live in the community (Corrigan, 2015)

Limits the amount of life situations that one can participate in and the ability to be social (Brown, Gordon, & Spielman, 2003; Corrigan, 2015; Linden, Crothers, O'Neill, & Mccann, 2005; Wise et al., 2010)

Leads to poor overall physical, mental, and emotional health (Forslund, Roe, Sigurdardottir, & Andelic, 2013; Wise et al., 2010)

Hypothesis: Increased and balanced community participation at Year 1 is associated with better health in Year 2.

IRB
Approved!

METHODS

Patients sustain a TBI and are enrolled under specific inclusion criteria required by the Traumatic Brain Injury Model Systems (TBIMS) longitudinal study.

After obtaining patient consent, data is collected at admission, discharge, and through follow-up interviews at Year 1, Year 2, Year 5, and each fifth year subsequently.

IV: Participation (Year 1)
• PART-O Summary and Balance scores

DV: General health (Year 2)
• PHQ-9 [Dichotomous] (N = 232)
• Current perceived general health (N = 157)
• Physical health over the past year (N = 157)

(Traumatic Brain Injury Model Systems National Data and Statistical Center, 2016)

Participation Assessment with Recombined Tools – Objective (PART-O): 17 items that measure three main areas:

- Productivity (work, school, and active homemaking)
- Social Relations (interacting with family and friends, providing emotional support, using the Internet, and relationship status)
- Out & About (leaving the house, going to a restaurant or the movies, shopping, exercising, volunteering, attending community events and religious services)

(Bogner et al., 2011 & 2017; Traumatic Brain Injury Model System Participation Special Interest Group, 2014)



Patient Health Questionnaire 9 (PHQ-9): 9-item depression module used to assess presence of major depression (MD)

- Coded dichotomously as 0 = 'NO' and 1 = 'YES' (scores of "5" or greater) for existence of required MD symptoms
- Five or more of the 9 depressive symptom criteria must be present at least "several days" in the past 2 weeks
- One of the symptoms is depressed mood or anhedonia
- Total scores can range from 0 to 27
- Each item can be evaluated as "0" (not at all) to "3" (nearly every day) (Fann et al., 2005)

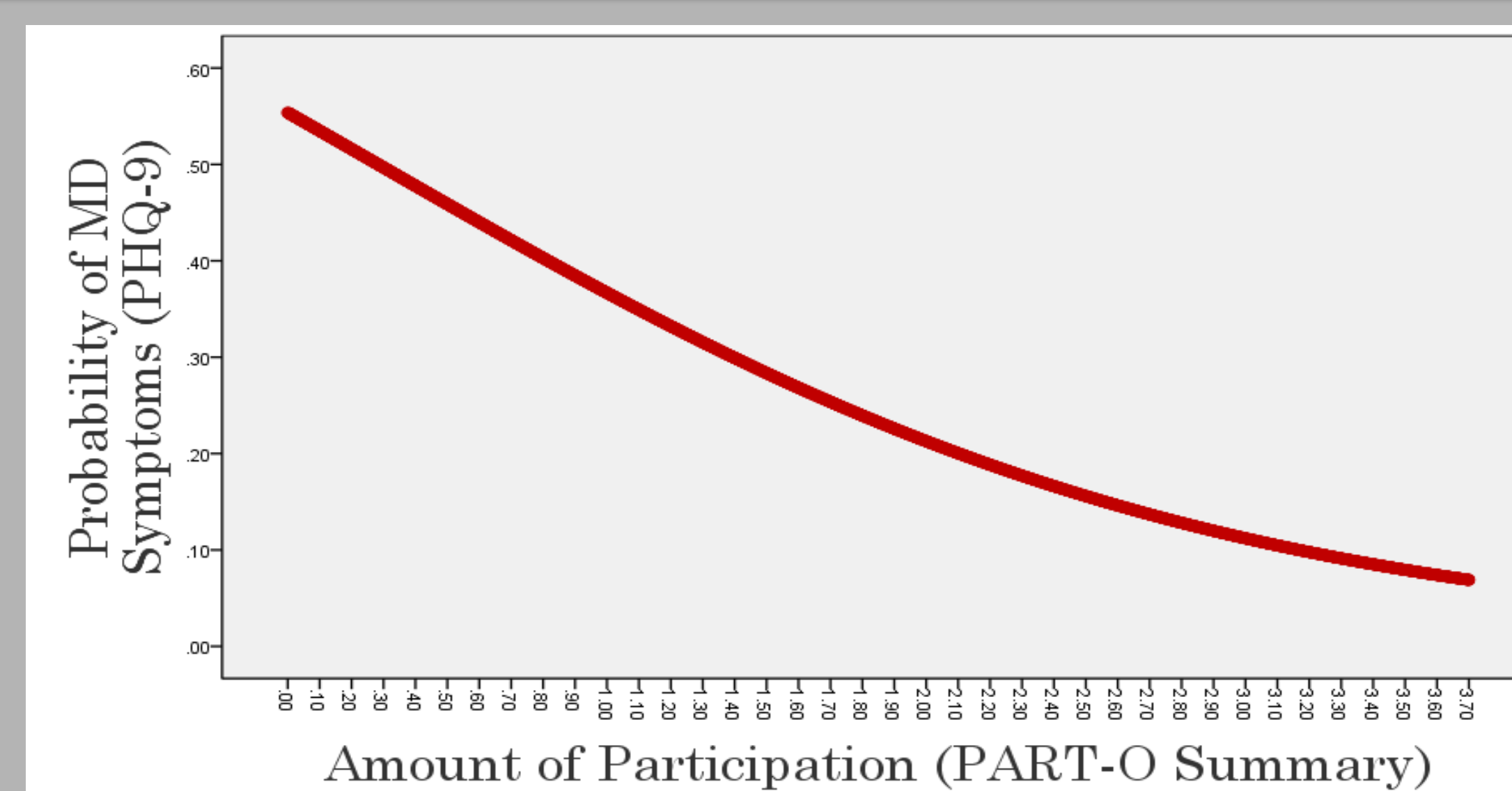
General Health Questions

- In general, would you say your health is...
- Scores can range from "1" (Excellent) to "5" (Poor)
- Compared to one year ago, how would you rate your physical health in general now?
- Scores can range from "1" (Much Better) to "5" (Much Worse)

RESULTS

Table 1. Logistic Regression – DV: PHQ-9 [Dichotomous] (Year 2)

Variables in the Equation	Step 2	
	B	S.E.
Minority	-.459	.474
Education (Year 1)	.599	.447
Marriage (Year 1)	.215	.432
Sex	.614	.376
Age	-.016	.012
Alcohol & Drug Use (Year 1)	-.526	.440
TOTAL Participation (Year 1)	-.762*	.345
BALANCED Participation (Year 1)	-.156	.438
FIM Motor (Admission)	.005	.011
FIM Cognitive (Admission)	.090**	.031
FIM Motor (Year 1)	-.033	.035
FIM Cognitive (Year 1)	-.161*	.064



(UCLA: Statistical Consulting Group, 2017)

Table 2. Linear Regression – General Health Questions (Year 2)

Variables in the Equation	Standardized Coefficients (Beta) DV: General Health	Standardized Coefficients (Beta) DV: Physical health
Minority	-.100	-.077
Education (Year 1)	.088	.132
Marriage (Year 1)	.022	.070
Sex	.028	-.061
Age	.116	-.063
Alcohol & Drug Use (Year 1)	-.015	-.069
TOTAL Participation (Year 1)	-.328**	-.003
BALANCED Participation (Year 1)	.055	.044
FIM Motor (Admission)	.020	.336**
FIM Cognitive (Admission)	.063	.018
FIM Motor (Year 1)	-.058	.001
FIM Cognitive (Year 1)	-.154	-.172*

* Significance at $\alpha = 0.05$; ** Significance at $\alpha = 0.01$

CONCLUSIONS

- Greater participation at one year post-TBI is associated with a) lower likelihood of symptoms of major depressive disorder ($p = 0.027$) and b) better subjective ratings of general health ($p = 0.001$) reported at two years post-TBI. Balanced participation was not associated with health outcomes.
- Significant but contradicting relationships between FIM Cognitive (Admission) and FIM Cognitive (Year 1) with depressive symptoms suggests the likely presence of another variable impacting this FIM measure at Admission that is not present at Year 1 which requires further exploration.
- Participants' subjective rating of their physical health at Year 2 compared to the year prior was not found to be related to participation at Year 1.

Early intervention with participation in TBI patients may improve depressive symptoms and subjective feelings of health. Further understanding of these relationships will allow for improved treatment and rehabilitation in patients following a brain injury.

REFERENCES & ACKNOWLEDGEMENTS

Please see handout for full list of citations.

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Contact information: markham.48@osu.edu